

Business Case Analysis

Proposed DesignMax System

Cost and Benefit Projections for 2004 - 2006

PRESENTATION TEMPLATE

- Replace examples with your own business case content.
- Scroll down slowly to see suggestions below the slides from the free white paper [Business Case Essentials](#).
- Use only the slides appropriate for your case and your audience.
- **Delete text boxes like this and the boxes below the slides before presenting.**

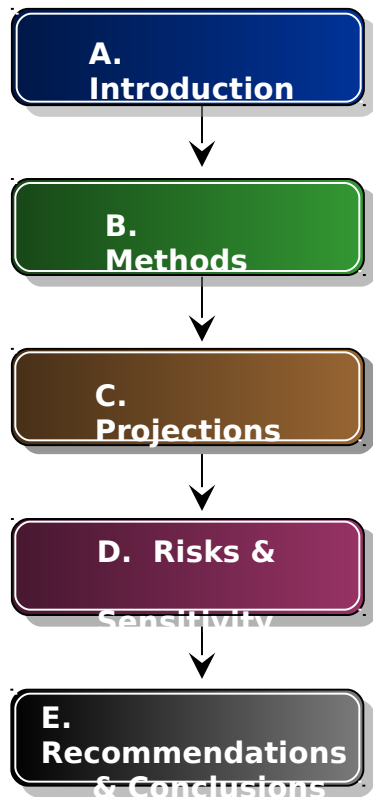
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By
Engineering Resource Planning
Board

For
Aerofirma Capital Review
Committee

1 December 2003

Presentation Overview



A. Introduction

- Proposed action
- Business objectives and motivation
- Opportunities threats & constraints

B. Business Case Methods

- Scope and boundaries of the case
- Scenarios analyzed
- Major assumptions
- Cost model
- Rationale for benefits

C. Cost and Benefit Projections, 2004 - 2006

D. Risk and Sensitivity Analysis

E. Recommendations and Conclusions

Slide Footers

Replace on **Slide Master** with your own date and name.

Proposed Action

- Purchase and implement DesignMax system, as proposed by Avanti Integrators, September 2003.
- Proposal includes:
 - 40 single-user licenses of the DesignMax module
 - Purchase of database module license
 - Training for design engineers
 - Purchase of installation and integration services
 - Additional hardware purchases during the second and third years of implementation.

Business Objectives

- Reduce costs in targeted areas in product design and manufacturing
- Meet the more complex needs of aerospace industry customers
 - More customized designs
 - Faster response to change requests
 - Better support customer certification requirements
- Reduce product development lead time (time to market)

Opportunities

- Market Share: Reaching design process improvement objectives will enable Aerofirma to increase market share by 20% within three years
- Cost savings: Greater productivity and shorter design times will save:
 - Concept design phase costs(15%)
 - Detail design phase costs (30%)
 - ECO reduction and change management (40%)
 - Manufacturing set up costs (35%)
 - Raw materials and WIP inventory costs (30%)

Threats and Constraints

- Design downtime and disruption during transition to the new system must be negligible
- R&D budgets for 2004 – 2006 cannot rise more than 10% above current (2003) level

Business Case Purpose

- To provide Aerofirma Capital Review Committee with the necessary financial projections, financial metrics, and assessment of contingencies and risks, to support a decision either to accept or not accept the Avanti DesignMax proposal.
- Decision will be made at the Capital Review Committee meeting, 1 December 2003.

Case Purpose: Financial Metrics

- The Capital Review Committee requires financial projections and financial metrics:
 - 3-year total cost of ownership (TCO)
 - Projected 3-year net cash flow including cost and revenue impacts
 - 3-year net present value (NPV)
 - 3-year return on investment (Simple ROI)
 - Projected market share impact
- Risk and sensitivity analysis will identify:
 - Critical success factors and contingencies
 - Risk factors that might change results

Analysis Scope and Boundaries

- Time
 - Analysis period: 1 Jan 2004 – 31 Dec 2006
- Organizations impacted
 - Design engineering
 - Manufacturing
 - IT
 - Customer service
- Geography
 - Headquarters site only

Scenarios Analyzed

1. Business as Usual
Assumes no DesignMax implementation
2. Proposal Implementation
Assumes implementation as proposed
3. Incremental Impacts
Incremental impacts =
Proposal scenario – Business as Usual

Major Assumptions

- Implementation begins mid-January 2004
- Learning curve complete by end of March 2004
- Implementation and transition to the new design system have no negative impact on design process times
- Salary increases average no more than 4% annually for 2004-2006
- Market size continues to grow 5% per year for 2004-2006

B. Methods

Cost Model

**Cost impacts
under all
scenarios**

		DesignMax Life Cycle Phase	
		DesignMax Acquisition and Start Up Year 0 and Year 1	DesignMax Operational Phase Year 2 and Year 3
Resources	Software	• Onetime license-Design SW • Onetime license-Database SW • Onetime license-Admin SW • SW Maintenance costs	• SW Maintenance costs
	Hardware	• Server system upgrades • Client system (desktop) purchase	• Server system upgrades • Client system (desktop) purchase
	Personnel	• Initial training • Design productivity	• Continuing training • Designer productivity
	Services	• SW installation and integration services	• SW integration services

Benefits Analyzed

- Objective: Reduce costs
 - Lower cost of design collaboration
 - More efficient variation/change management
 - Increased personnel productivity
- Objective: Meet the more complex needs of aerospace industry customers
 - New design customization possible
 - Faster response to customer change requests
 - Better support of customer certification requirements
- Objective: Reduce product development time
 - Fewer changes, earlier changes
 - Simultaneous design phases
 - Earlier manufacturing set up

Data Sources

- Aerofirma 2002- 2003 Business Plans
- Design Max Proposal from Avanti Integrators, September 2003
- 2003 capital and operating budgets
- Feasibility study conducted at headquarters site August - October 2003
- Published industry averages and “best-in-class” figures

C.
Projections

Financial Projections

Summary of Financial Results and Assumptions

Incremental cash inflows (outflows) with DesignMax

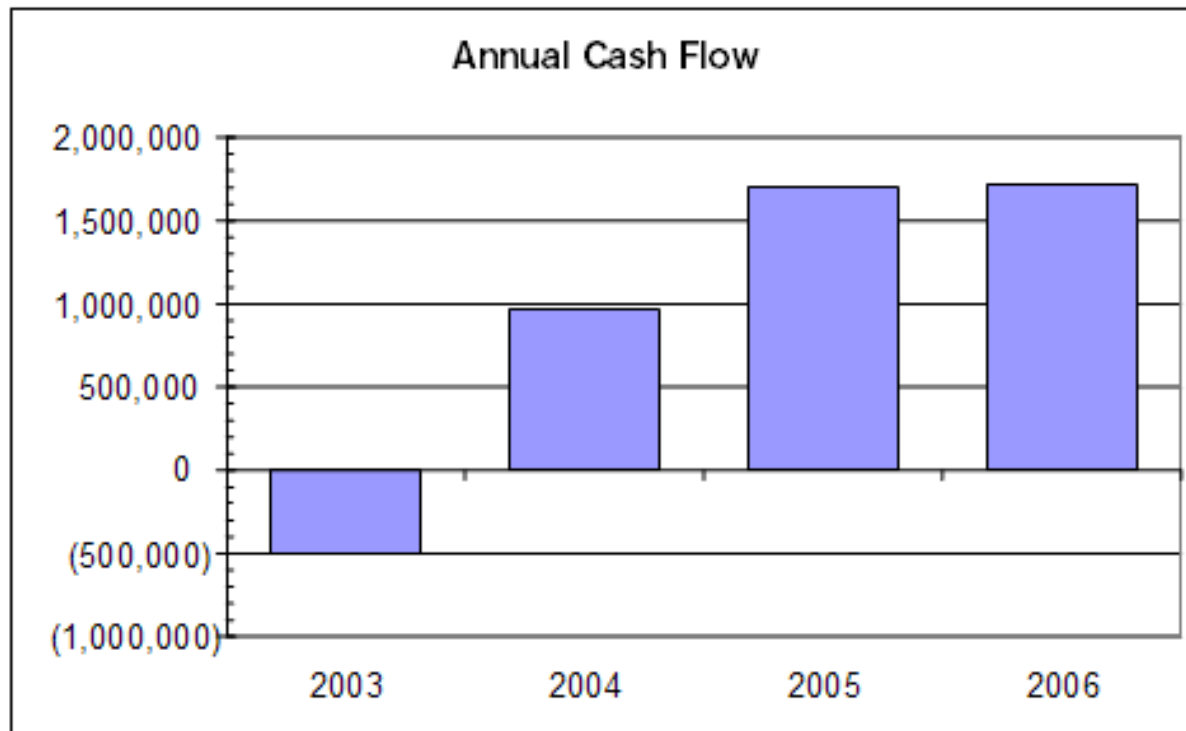
Net Cash Flow.....	€	3,872,473
8.0% discounting, Net Present Value.....	€..	3,206,316
15.0% discounting, Net Present Value.....	€..	2,747,076
Simple ROI*.....	€.....	395.2%
Payback Period		0.5 Years
Internal Rate of Return.....		211.7%
Total Benefits / Gains.....	€..	4,852,466
Total DesignMax Costs.....	€.....	979,992
Analysis Period.....		1 Jan 04 through 31 Dec 06
Analysis Period Length.....		3 Years

* SROI = (Net Cash flow - Total DesignMax costs)/Total DesignMax costs

C.
Projections

Projected Cash Flow

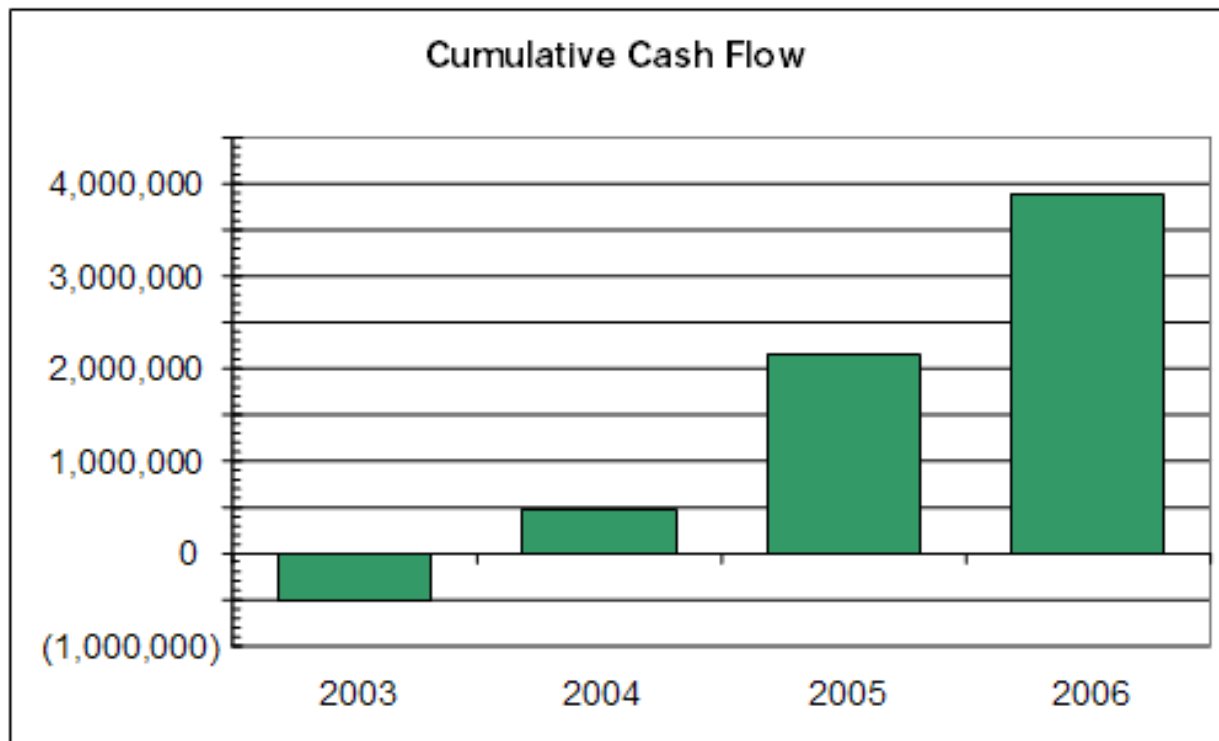
Aerofirma Aircraft Assemblies AG
Proposed DesignMax Implementation for Design Engineering
Currency €



**C.
Projections**

Cumulative Cash Flow

Aerofirma Aircraft Assemblies **AG**
Proposed DesignMax Implementation for Design Engineering
Currency €



Cost Savings Example

DesignMax Impact on Change Costs

	% of Total Changes Now	% Total Changes with DesignMax	Average € Per Change	Net Difference per Year
Concept Design Phase	41%	51%	€ 200	(€ 10,000)
Detailed Design Phase	30%	26%	€ 1,200	€ 54,000
Testing and Prototype Phase	19%	19%	€ 9,600	0
After Start of Production	10%	4%	€ 24,000	€ 120,000

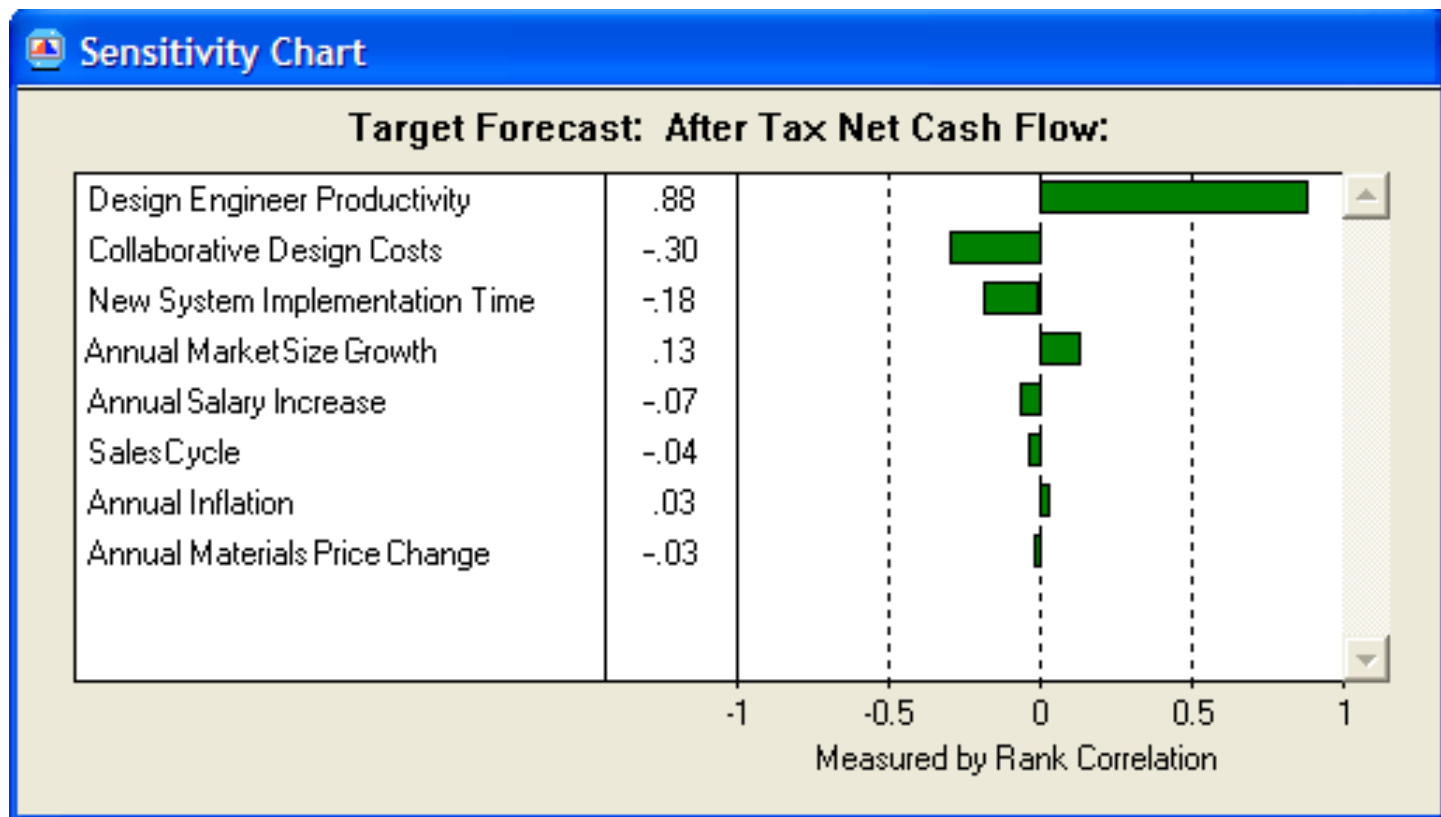
Annual Savings: € 164,000

D. Risks &

Sensitivity

Sensitivity Analysis

Which Assumptions have the most impact on Investment Returns?



Monte Carlo Simulation Sensitivity Results

Sensitivity of Results

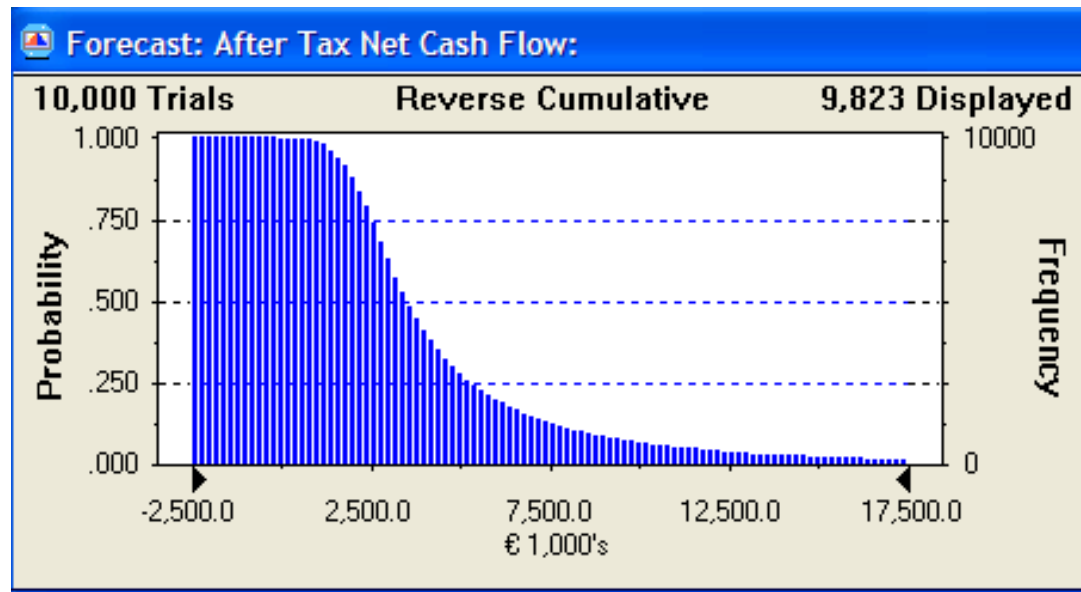
- Assumed: Collaborative engineering costs will be reduced 12.5%
 - If cost reductions are only half the expected amount, net cash flow for the whole investment drops from €3.87 million to € 2.87 million
 - If cost reductions are larger, say 25%, the overall expected returns rise to €6.00 million
- Assumed: Productivity of 40 design engineers will improve by 10%
 - If productivity improves only 5%, projected results fall 15% to €3.3 million
 - If productivity improves 20%, investment returns rise to €6.0 million

D. Risks &

Sensitivity

Risk Analysis

How Likely Are Other Results?



Monte Carlo Simulation Risk Results

The Probability that returns on this investment

- Break Even, at least, is 0.999
- Equal € 2,500,00 or more is 0.83
- Equal € 3,872,473 or more is 0.50
- Equal € 5,000,000 or more is 0.28

**E.
Recommendations
& Conclusions**

Recommendations & Conclusions

Based on the business case analysis presented here:

We recommend that the Aerofirma Capital Review Committee vote to fund the DesignMax Proposal from Avanti Integrators

Recommendations & Conclusions

In order to minimize risks and maximize returns from Aerofirma's investment in Design Max, we further recommend that Aerofirma:

- Begins working with Avanti consultants immediately to plan the integration project
- Ensures that Aerofirma IT staff and resources are committed to the DesignMax installation and integration
- Appoints a transition manager responsible for ensuring that existing customer projects are completed on time without disruption during the transition
- Requests and reviews quarterly reports on the financial measures outlined in the business case report and progress toward the important business objectives outlined earlier in this presentation